

# COURSE DETAIL

## FLUIDS MECHANICS I

**Country**

Singapore

**Host Institution**

National University of Singapore

**Program(s)**

National University of Singapore

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mechanical Engineering

**UCEAP Course Number**

123

**UCEAP Course Suffix**

A

**UCEAP Official Title**

FLUIDS MECHANICS I

**UCEAP Transcript Title**

FLUID MECHANICS I

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

### **Course Description**

This course introduces fluid mechanics as applied to engineering. After introducing the basic terminology and a classification of fluid and flow, the course presents fluid statics, which cover hydrostatic forces on submerged bodies, surface tension forces, buoyancy, metacentric height, and stability of floating bodies. The course presents numerous examples of engineering applications pertaining to each aspect of fluid statics. In the section on fluid dynamics, the course introduces basic principles of fluid motion. Topics include continuity equation, Bernoulli and energy equations, and free-surface flows including hydraulic jumps, the momentum equation and its engineering application using the control volume approach, flow measurements and common pressure instrumentation, velocity and volumetric measurements, analysis of engineering results, the dimensional analysis and similitude.

### **Language(s) of Instruction**

English

### **Host Institution Course Number**

ME2134

### **Host Institution Course Title**

FLUIDS MECHANICS I

### **Host Institution Campus**

### **Host Institution Faculty**

### **Host Institution Degree**

### **Host Institution Department**

Mechanical Engineering

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